



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/066,297	02/01/2002	Gilbert Wolrich	10559/611001/P12850	2052
20985	7590	01/06/2006	EXAMINER	
FISH & RICHARDSON, PC			HOM, SHICK C	
P.O. BOX 1022			ART UNIT	
MINNEAPOLIS, MN 55440-1022			PAPER NUMBER	
			2666	

DATE MAILED: 01/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/066,297	Applicant(s) WOLRICH ET AL.	
	Examiner Shick C. Horn	Art Unit 2666	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 February 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 2666

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

2. Claims 2, 7, 17-20 are objected to because of the following informalities: In claim 2 line 3, claim 7 line 4, claim 17 line 4 the words "an enqueue request" seem to refer back to the "enqueue request" recited in claim 1 line 4; claim 6 line 15; claim 16 lines 5-6, respectively. If this is true, it is suggested changing "an enqueue request" to ---the enqueue request---. In claims 17-20 line 2 delete "the computer" and insert ---the computer of the computer system---, for clarity. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. Claims 2, 5, 7, 10-11, 16-20, 22, 25-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite

Art Unit: 2666

for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 2 lines 3-4, claim 7 line 3, claim 17 line 3, claim 22 line 2 which recite "said other buffer" and "the other buffer," respectively, lacks clear antecedent basis because no other buffer have been recited in the claims and therefore the limitation is not clearly understood.

Likewise, in claim 16 lines 5, 13 and 7 which recite "the new buffer" and "the queue descriptors," respectively, lack clear antecedent basis. In claim 5 line 2, claim 10 line 3, claim 11 line 2, claim 20 line 3, claim 25 line 3, claim 26 line 2 the words "a queue descriptor" is not clear as to whether they refer back to the "queue descriptor" recited in claim 1 lines 2-3; claim 6, lines 13-14; claim 16 line 3; claim 21 lines 18-19, respectively or some other queue descriptor.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

Art Unit: 2666

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-4, 6-9, 12, 14-19, 21-24, 27, 29-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Kao (6,523,060).

Regarding claims 1-4, 6-9, 12, 14-19, 21-24, 27, 29-30:

Kao discloses a method of processing data packets comprising: generating an enqueue command specifying a queue descriptor associated with a new buffer in response to receiving an enqueue request, with the queue descriptor stored in a cache and the queue descriptor having a head pointer pointing to a first buffer in a queue of buffers and a tail pointer pointing to a last buffer in the queue of buffers and with the first buffer having a buffer pointer pointing to a next buffer in the queue; setting a buffer pointer associated with the last buffer to point to the new buffer; and setting the tail pointer to point to the new buffer as in claims 1-2, 6-7, 12, 16-17, wherein the queue is a linked list of buffers as in claims 15, 30; the step of generating a dequeue command and setting the

Art Unit: 2666

head pointer to the next buffer as in claims 3-4, 8-9, 18-19, 23-24, (see col. 5 lines 19-35 which recite the processor having a cache for queuing packet data acting as the queuing processor for ingress buffer queue and the servicing processor for egress buffer queue and col. 1 lines 39-47 which recite buffers being queued by creating and maintaining linked lists of buffers clearly anticipate processing data packets comprising the enqueue command to queue new buffer; col. 6 lines 13-27 which recite the buffer descriptor including the pointer to the next buffer for linking one buffer to the next buffer being stored in memory locations clearly anticipate the queue descriptor stored in the cache including pointers to the buffer in the queue of buffers; col. 1 line 61 to col. 2 line 2 recite the head pointer specifying the head or beginning of the queue and the tail pointer specifying the tail or end of the queue whereby when a new buffer is added to the queue the tail pointer is set to indicate the new buffer and when a buffer is removed from the queue, the head pointer is set to the buffer pointed to by the next pointer of the buffer as claimed).

Regarding claims 14, 29:

Art Unit: 2666

Kao discloses wherein each buffer in the queue includes a count field having a value representing the number of buffers in the queue (see col. 7 lines 18-27 which recite the count of the number of data elements in the data queue being maintained).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c)

Art Unit: 2666

and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 5, 10-11, 13, 20, 25-26, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kao (6,523,060) in view of Lenell (6,975,637).

For claims 5, 10-11, 13, 20, 25-26, and 28, Kao discloses the system, method, and apparatus described in paragraph 5 of this office action. Kao discloses all the subject matter of the claimed invention with the exception of replacing a queue descriptor with the queue descriptor associated with the new buffer, if the queue descriptor associated with the new buffer is not in the cache as in claims 5, 10, 20, 25; configured to replace a queue descriptor based on a least recently used (LRU) policy as in claims 11, 26; and wherein the cache of queue descriptors includes approximately 16 queue descriptors as in claim 13, 28.

Lenell from the same or similar fields of endeavor teach that it is known to provide replacing a queue descriptor with the queue descriptor associated with the new buffer, if the queue descriptor associated with the new buffer is not in the cache as in claims 5, 10, 20, 25;

Art Unit: 2666

configured to replace a queue descriptor based on a least recently used (LRU) policy as in claims 11, 26; and wherein the cache of queue descriptors includes approximately 16 queue descriptors as in claim 13, 28 (see col. 7 lines 25-34 which recite the descriptor table consisting of a circular queue structure whereby the tail pointer and head pointer are the same when the queue is empty, Fig. 2 which shows the table or cache of queue descriptors being approximately 16 queue descriptors, and col. 7 lines 46-59 which recite the use of a LIFO by the free buffer manager to grant new buffers and to collect free used buffer clearly reads on replacing queue descriptor based on a least recently used policy as claimed). Thus, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to provide replacing a queue descriptor with the queue descriptor associated with the new buffer, if the queue descriptor associated with the new buffer is not in the cache; configured to replace a queue descriptor based on a least recently used (LRU) policy; and wherein the cache of queue descriptors includes approximately 16 queue descriptors as taught by Lenell in the communications system, method, and apparatus of Kao. The step of

Art Unit: 2666

replacing a queue descriptor with the queue descriptor associated with the new buffer, if the queue descriptor associated with the new buffer is not in the cache; means configured to replace a queue descriptor based on a least recently used (LRU) policy; and wherein the cache of queue descriptors includes approximately 16 queue descriptors can be implemented by connecting the queue controller, registers, and software technique of Lenell to the queue manager of Kao. The motivation for providing The step of replacing a queue descriptor with the queue descriptor associated with the new buffer, if the queue descriptor associated with the new buffer is not in the cache; configuring to replace a queue descriptor based on a least recently used (LRU) policy; and wherein the cache of queue descriptors includes approximately 16 queue descriptors as taught by Lenell in the queue management method of Kao et al. being that it provides more efficiency for the system since the system can better support high-speed network switching.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Art Unit: 2666

Harter, Jr. et al. disclose a method and apparatus for synchronized message passing using shared resources.

Garcia, Jr. et al. disclose adapters with descriptor queue management capability.

McKenna discloses a data communication controller for use with a single-port data packet buffer.

O'Loughlin et al. disclose a method and apparatus for packetizing data into a data stream.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shick C. Hom whose telephone number is 571-272-3173. The examiner can normally be reached on Monday to Friday with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2666

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SH



DANG TON
PRIMARY EXAMINER